

Template design to improve the research process in the graphic design thesis course

Diseño de plantillas para mejorar el proceso de investigación en el curso de tesis de diseño gráfico

Rafael Vivanco¹, Sandra Tineo²

Abstract: The design process of the INPADI templates (Investigación para Diseñar) is described as a methodological tool for the improvement of the research process aimed at students of the last year of graphic design, who are developing their thesis. Based on the experience as professors of the course on graphic design thesis, general problems were identified and the templates were designed and implemented to solve these problems, as

a means to ensure that the student understands the steps to structure a research problem and propose a creative and innovative design project; in addition, the management of the course considered the virtual education model.

Keywords: Research, graphic design, methodology, innovation, design project, university thesis.

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Resumen: Esta investigación describe el proceso de diseño de las plantillas INPADI (Investigación para Diseñar) como herramienta metodológica para el perfeccionamiento del proceso de investigación dirigido a los alumnos del último año de diseño gráfico que están desarrollando su tesis. Tomando como base la experiencia como profesores del curso de tesis de diseño gráfico, se identificaron problemas generales del proceso de investigación y se diseñaron e implementaron las plantillas a fin de resolver esos problemas, de manera que se garantice que el alumno comprenda los pasos para estructurar un problema de investigación y proponer un proyecto de diseño creativo e innovador; además, se consideró la gestión del curso con el modelo de educación virtual.

Palabras clave: Investigación, diseño gráfico, metodología, innovación, proyecto de diseño, tesis universitaria.

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Introduction

When Walter Gropius founded the Bauhaus school more than 100 years ago, he unknowingly laid the foundations of design as a discipline with a solid social philosophy focused on design for problem-solving (Droste, 1998). If the purpose of design is to solve problems, the designer must have the overall capacity to take on this challenge, so he must know the situation to solve it with the tools at his disposal. After a long design evolution, which has gone through aesthetic, functional, and communicative aspects, design has returned to its social origin. Today's designer is conceived as a holistic professional capable, in the first instance, of identifying problems to seek coherent and responsible solutions for the environment. With that purpose, the designer must be educated to recognize the environment and reality to which he belongs (Vivanco, 2018).

Since then, design has been conceived as a projective activity rather than as an academic discipline, and its development has privileged professional practice over the production of knowledge. Most authors (Archer, 1979; Bonsieppe, 2007; Medrando, 2016; Munari, 2016) describe the discipline of design in these terms. Costa (2014), for example, states that design is a projective activity, the fruit of a plan and that it exists to cover functions and improve people's quality of life. This would explain why research has not (until now) been a compulsory activity for design. However, due to the reforms in higher education resulting from contemporary neoliberalism, research has become a primary function of art and design education (Bordgoff, 2004; Pontis, 2010). In addition, design has increased its competence and has matured as a discipline, so the academic development of design research cannot be postponed (Tineo, 2019).

This article seeks to contribute to this scenario, given that it is a relatively new competence in the training of designers. It is not that there is no research in the practice of design; designers have always done research, but not from an academic perspective, nor with a broad social or contextual approach, which invites to formulate research methodologies that integrate methods and tools from other disciplines.

In the specialty of graphic design, we use the methodology of research through design, which covers the research process from the statement of the problem to the validation of the design project, in other words, we build knowledge by systematizing through research the interactions that arise from the same study and practice of design (Tineo, 2017). In that sense, it is essential that the designer fully understands how to research and why, knows the research problem well, and identify the actor or actors to address. Thus, they will propose a design project that articulates the problem with the actor involved through an adequate concept that guarantees the solution with an innovative and creative design. In this process, it is essential that the designer fully understands the procedure he or she is carrying out. This is where the templates come into play as a contribution to promoting the development of the ability to integrate the parts of the research.

There are several ways to approach design research, in this case, we have started from the approach defined in *Guía de investigación en arte y diseño* (Montalván Lume et al., 2019) developed by the specialties of the Faculty of Art and Design of the Pontificia Universidad Católica del Perú (PUCP) as input for the development of the templates in the context of the thesis course. The research methods used depend on a series of factors related to the topic, the context, the language, and the resources proposed as a solution. Thus, there are methods focused on the collection of information (bibliography and fieldwork), others are

based on the investigation of a problem, which is the focus of this study, and others concentrate on the creative production for the development of the design project, aiming at the design itself. That does not mean that some are better than others; the important thing is the collection of information and the use given to it (Vivanco, 2019).

The proposal is based on systematizing the process of research to design through the templates, which includes the following stages:

- a. First, identify a topic of interest.
- b. Then, formulate an existing problem related to the topic.
- c. Next, review the literature, and develop the conceptual and theoretical framework.
- d. In parallel, conduct research in the field, identify and interview the actors involved, and find and record the visual repertoires.
- e. Finally, propose a design project that can mitigate, highlight or solve the problem to address.

This process includes using methods for the theoretical development of the problem in question and the design tools used in the proposed solution, which allows the integration of the essential aspects for a design project to be creative, aesthetical, innovative, and effective as a solution.

Teaching research to a designer

The design professionals are concerned with the growth of their specialized knowledge through the understanding of diversity, identity, limits, and potentialities of what they are or are not capable of doing, what they know, and what they still need to know (Juez, 2002). Therefore, getting the student to understand the process and the correct terms of research requires an appropriate teaching methodology and, above all, oriented to the design proposal.

It is difficult for a student inexperienced in research to understand the process and methods involved. Similarly, understanding the importance of asking research questions, identifying variables, stating objectives, describing actors, working in the field, and writing an ethnography requires tools, such as templates for the student to understand the process they are immersing themselves in and become familiar with each term and its importance so that they can come up with a concept and develop a design project.

The application of the templates allows students to develop a competent and efficient research process and shows that there was a weakness in the search for reliable and trustworthy information. It was found that most of the students were limited to search for primary sources of information, such as websites of foreign institutions unrelated to our reality, blogs of unrecognized authors, magazines without a trajectory, and opinion and not factual portals. This was identified as a problem in the course, so it has now been incorporated in the templates for students to search for reliable information and indicate accurate data based on recognized sources, authors and documents according to their topic, both in the theoretical and practical part.

When students do not know what topic they can research or how to approach it, the templates help propose several issues on which a general inquiry is made and then choose the one of most significant interest, making it easier to find the problem to investigate. Subsequently, the student will define who is involved in the situation and where the events

take place to formulate the research question and thus obtain the variables according to the formulation. Then, they will be able to construct the theoretical framework that will allow them to explain the problem in depth. Finally, the research will enable the student to develop a design project that will answer the problem addressed.

If the student cannot understand the importance of each step in this process and complete it correctly, the result will be an incoherent project. Valuable time will have been wasted, and the research competence to make a coherent design project will not have been developed. The word *design* is an Anglicism that means mental plan, project (González, 1994), and it is worth remembering that, above all, design refers precisely to a plan or project, rather than a trace or sketch (Moreno Rodríguez, 2014). Design, more than making drawings or graphics, is based on the act of seeing, looking, and observing, that is, investigating (Costa, 2014). The design project requires a transparent process and that the student knows the development of each step to maintain their interest to move forward with sufficient tools to build an innovative, creative, sustainable over time, and above all viable project.

INPADI Templates (INvestigar PAra DIseñar) (Investigate to design)

The INPADI templates are 12 in number and range from the general to the specific; they start with the proposition of general research topics and then analyze what happens within them to identify causes, consequences, and actors involved in formulating the research problem. Fieldwork is done through observation, interviews, and surveys. It is followed by the construction of the theoretical framework, the methodology to be used, and the hypothesis statement up to the proposal of the design project. The information developed in these templates allows structuring the thesis plan and its development. For the next course, three additional templates are considered, referring only to the project, which will facilitate the development of the project process.

The templates were designed in 2020 and have been updated to obtain more accurate information. They are used as class material with the aim of structuring and ordering the development of the thesis research. This includes the development of a theoretical class that accompanies the topic of each template, carried out with examples and other support materials that ensure learning (see annex in QR).

All the information collected in the templates will be helpful for the research process, the development of the thesis plan and, of course, the final document. These formats allow the student to have an order in the research process and help the teacher detect the students who experience difficulties. At the same time, it helps the whole class to advance together. (Figure 1)

Content of the templates

Template 1 is for thematic research because it always starts with experiences, ideas, and opinions about the problem to be studied (Hernández, Fernández-Collado & Baptista, 2017). It begins with the request for two topics of interest. The students are asked to describe what they know about them, to research on the internet, and to use various sources as a first approach to the research. Then, they choose one of the topics, delve into the investigation, and finally, write a summary supported by a battery of questions that allows them

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Figure 1. Sample INPADI template 001, 2021

to understand the causes and consequences of the problem. Finally, they formulate the first draft of the research problem.

Template 2 is for the problematization, which leads the students to search for information in reliable sources (books, theses, websites of entities, news, etc.) related to the problem and approach its reality. Then, they will have to answer some questions that will lead them to redefine and improve the wording of the main concern and the secondary ones. Here, they should also discover which actors are involved and where the problem takes place, in other words, the field. These terms will be known and understood naturally. As Hernández, Fernández-Collado and Baptista (2017) point out, we define the core concept of our study and the concepts we consider linked to it according to our experience and our literature review. As designers, in this template, it is important to visually represent the problem for a complementary understanding of the researcher's vision.

In template 3, the authors and sources selected will be developed more rigorously. The primary and secondary problems will also be defined correctly and functionaly. Then, based on each problem, the study variables are identified, and used to build the theoretical framework, allowing the student to develop the research. Being rigorous with the sources of information allows the teacher to corroborate whether the student is looking for information superficially or systematically.

Template 4 introduces the fieldwork, it is about understanding that research consists of a theoretical part, given by the authors, theories, and concepts; and an empirical part formed by the fieldwork, which includes interviews, surveys, participant observation, and visual or written ethnography (Guber, 2005). This template identifies the problem field, its considerations, and describes the actors involved. It is necessary to describe the actors because it helps to understand their relationship to the study problem. With this template will be evaluated whether students understand the concepts of field actor, as well as the considerations that should be taken into account concerning the actor, since the researcher structures the study with what he or she can collect (Hernández, Fernández-Collado, & Baptista, 2017).

In template 5, the learner designs a general methodology for collecting information in the field through interviews or surveys and indicates the reasons and actors to be interviewed. In this way, the student has a concrete plan for the search for information. The same is required with fieldwork observation, through participant observation leading to an audio-visual or written ethnography with an instruction of what is to be observed and how it will be recorded. Here, the students establish their order of priorities and understand the rationale for applying each method. This template requests more authors, but this time differentiated according to the study variables resulting from the primary and secondary problem formulation.

Template 6 is for reporting the fieldwork carried out. This can be in a physical way, either by attending a place determined by the research with all the relevant security measures or in a virtual way, perhaps studying behaviors in Zoom meetings, social networks, websites, blogs, etc. The template concludes with the presentation of a short ethnography that gives a narrative account of the fieldwork carried out, consisting of a text and a visual corpus through the photographic record.

In template 7, are designed the question guides for the surveys and interviews to the actors. With the research problem and objectives, the students elaborate the appropriate

questions to obtain the information they are looking for and describe the purpose of each tool. It is important to note that the students should have clear objectives for each activity. This template allows the teacher to guide the learner in the search for information by objectives and to establish precise, relevant and properly asked questions. To do this, the order of the questions must demonstrate empathy and build confidence to obtain the information sought.

Template 8 is for the development of the theoretical framework. It uses as input the variables of the main and secondary problem, and the literature review provided by the concepts and theories of the problem. On this basis, a table of contents is prepared, which should include the terms and theories that offer significant help for the concept and design proposal, and a narrative of the problem is proposed to guide its solution.

In template 9, before starting to write, the students solve a series of writing exercises that allow them to understand what an author's quotation is and how to do it correctly in order to give the corresponding credit to where the text and the images were obtained from.

In template 10, after having researched and read about the problem, the student describes in detail the actors involved. It is important to see the progress of the knowledge of the actors and their characteristics in relation to their role in the problem. This template helps the student choose the actor to be addressed in the design project among the actors involved and justify and argue it correctly. At that moment, the actor becomes what we call the project's target audience for the design. It should be clarified that, from the moment we start from an investigated actor, he is no longer neither public (anonymous), nor objective (passive), but has subjectivity and agency; namely, he or she has the power to transform the reality of the problem (Tineo, 2019).

In template 11, we enter the creative phase of the research. Based on the processed information and the knowledge of the field and the actors, the design project begins to be conceived from the formulation of a concept through the process of conceptualization. In order to do this, a series of questions related to communication must be answered in the template, which allows the core of the concept to be found. This concept will then serve as the basis for the student to propose a design project by answering another series of questions. This template includes deciding on one of the design specialties that awakens the student's professional interest and on which the development of the project will focus, such as illustration, packaging, editorial, interiors, multimedia, brand management, product, furniture, etc. Finally, we arrive at the elaboration of the project itself, which includes a brief, stages, objectives, audiences and messages, and closes with a detailed summary of the project, which explains what it consists of, how it is conformed, how you plan to develop it, including the articulation from beginning to end. An inspiration board (mood*board*) is also requested to show the visual identity of the project (concept, typographies, colors, textures, references) and a panel of associated words that serve as a creative and conceptual exercise for the elaboration of the verbal communication of the project (naming, slogan, selling or positioning phrases, strong ideas, short messages, among others).

Finally, template 12 closes the creative process of project development, defines its main aspects, such as name, audience, concept, pieces, specialty, process, evaluation, and validation of the project, and invites to reflect on the general design methodology used in

the process. Regarding the validation process, two options are presented in the templates: project implementation and peer judgment. These options have been previously evaluated and found to be the most appropriate in the context of the pandemic (Figure 2).

The INPADI templates are presented as a didactic resource that seeks to shape the pedagogical proposal of research during design presented for the Specialization in Graphic Design at the PUCP. The templates were applied to investigate and propose a design project in the Integral Projects I course (DGR 225) during the 2020-2 semester. This is a senior year course in which students apply the knowledge, both content and procedural, acquired throughout their academic training and channel it into developing a research work that culminates in their bachelor's degree thesis. Therefore, the course's main objective is to develop such research work, and its duration is 16 weeks, with 8 teaching hours per week divided into two classes of 4 hours each and divided into two blocks or schedules (0911 and 0912).

The students enrolled in the course were 18, and the course was taught by 4 professors, whose mission was focused on the personalized and in-depth review of the research work, with enough time to analyze and discuss the development of each stage, the research process, and the elaboration of the design project. The templates accompanied the development of the syllabus, which made it possible to systematize the overall progress weekly in parallel with the Paideia platform to keep track of each student's progress. The content developed in each template served as input for elaborating the thesis plan presented at the end of the course. The templates allow the student to be clear about their progress process, make extra annotations to what was requested, make corrections permanently, and, above all, have an overview of the contribution that research means for both society and the discipline.

Results of the application of the templates 6.1 Limitations encountered

During the process of observing the application of the templates, the following problems that need to be addressed in order to improve both the templates and the effects of their application were identified:

- The problem of the tendency to search for non-relevant sources of information, although it has improved, persists despite the templates, even though there are three templates dedicated to it (P01, P02, P08), which shows that it is still necessary to insist on it.
- A need has been identified to better balance the amount of content and specificity
 of information in each template with respect to the relationship between them. This
 refers to the fact that some templates are extensive compared to very specific ones,
 or some are very long and others very short.
- In order to maintain the sequence of the course and advance in parallel with the topics of the syllabus in the Paideia platform, sometimes teachers advance or students fall behind, and when this happens, they skip the order of the templates; therefore, this should be reviewed.
- It has also been observed that some students find it difficult to "translate" the language and format of the template into the writing of the thesis, in which they must

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Figure 2. Sample INPADI template 012 referring to the design methodology to be used, 2021

develop their information in greater depth. This is a point that requires attention, not in the improvement of the template, but in the course.

Finally, it has been noticed that despite our expectations in the templates regarding the integrity of the research process, the relationship between the problem studied and the design proposal from a broader perspective, which should occur through the process of conceptualization in research, has yet to be reinforced. That is to say, in many cases, the students do not manage to articulate the problem, the actors, and the context to propose the solution through their design. We do not know if this aspect is due to the fact that the templates represent a new modality of work or if the cause is the same problem of translating the "format" of the template to the writing of the thesis itself, or perhaps we should isolate the conceptualization process; in any case, we are working on it.

6.2 Progress achieved

We also found points of progress and improvement driven by the templates in the research process and the Integral Projects course. Below, we mention those that we consider most important:

- Before the application of the INPADI templates, no matter how rigorous the work plan was, the presentation of progress was always a little disorganized, both with respect to the level of progress and concerning the support, because each student has his or her own time and learning system. The templates have improved this aspect and have put an order in the steps to be followed. Although each student assimilates the concepts at their own pace, they all have the same tool.
- The templates in their updated version motivate students to develop the research by showing in a simple and orderly way the steps that might be complicated for them, such as reflecting on the findings, conducting interviews, surveys, participant observation work, or the process of conceptualizing and formulating the design project.
- Students have found it valuable to have a format that facilitates the research process. Especially when they decide to make changes or adjustments that will affect the research process, these can be made without prejudice because they are clearly identifiable and can order the research sequence in an articulated way. During the first four weeks, 100% of the students progressed regularly and simultaneously.
- The templates have also proven to be useful as a learning tool. They serve as an extension of the theoretical lecture and help understand the topics addressed through their practical application in the learning sequence.
- As for the research evaluation, despite having rubrics to measure progress, this is
 often difficult because of the aspects it covers and the non-uniform timing of the students' research process. However, the templates have proven to be helpful in assessing progress efficiently and objectively.
- The use of these teaching-learning templates allowed the teachers to advance homogeneously in the classroom. A significant improvement was achieved in the partial and final grades of the course and the design project proposals. At the end of the experience, the participating students had a well-defined design project, which

allowed them to continue their thesis advisories leading to a bachelor's degree in the following semester.

Conclusions

The application of INPADI templates encourages the production of knowledge, with which design has pending accounts. By improving and developing research methodologies, this proposal contributed directly as a didactic resource that shapes the pedagogical proposal of research in design.

Developing a method through the application of templates in the design research process allows the student to theoretically grasp the research and increase their understanding of the process, leading to an improved research product.

The use of the templates makes it possible to detect when there is a bottleneck or a lack of understanding on the part of the student effectively. This detection makes it possible to solve the limitation and leads to a better performance of the students so that they reach the competencies they should acquire through the research process.

In addition to building a creative and innovative project, the improvements in the design research process achieve, above all, the formation of a holistic professional designer capable of facing an increasingly competitive and globalized world.

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Annex

The templates used in the INPADI proposal can be downloaded at this link: shorturl.at/mIY78

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